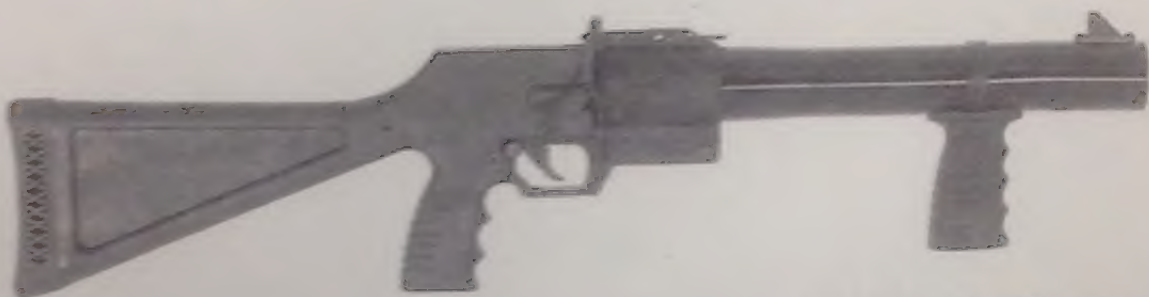


PENN ARMS



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L1-37MM/L1-37MM COMPACT LAUNCHER

Maintenance and Repair Manual

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1. GENERAL INFORMATION & SPECIFIC WARNINGS

1. **Do not** use the L1 launcher until you have received proper training on the use of any tear gas dispenser, understand the dangers of tear gas and have had the first aid training in treating people subjected to tear gas exposures.
2. **Do not** operate launcher without first reading the users manual in its entirety. This launcher, and the tear gas used there-in, is designed to be used by trained law enforcement officers and not intended for use by the general public.
3. **If tear gas is not used as intended**, injury to person and property, including death can occur.
4. **Outdoor use only**- tear gas used in the L1 can cause fires.
5. **The launcher should not be used unless it has been properly maintained** according to the instructions contained in this user's manual.
6. **Do not** use any tear gas product that has exceeded the shelf life as noted by manufacturer.
7. **Bore obstruction warning**- before loading the L1-37mm launcher make sure that the barrel is clear of any obstructions, as this could cause injury to the shooter and bystanders and/or damage the launcher.
8. **If flares are to be used that do not fit the chamber then contact the factory.**
9. **Only use ammunition** from reputable manufacturers.
10. **Do not use any ammunition with chamber pressures exceeding 1200 p.s.i.**
11. **This launcher is not recommended for the use of** "bird bombs," "flash bangs" and other similar ammunition available on the commercial markets.
12. **Always wear eye and ear protection when using this launcher. Obey all safety rules!**
13. **Alteration warning:** customer will void limited warranty if any alteration is made to this launcher. No substitute parts are acceptable unless produced and supplied by the manufacturer.
14. **Safety mechanism:** the user should never rely on the safety mechanism or any other safety device to justify careless handling. Always point the launcher down range to prevent accidental firing.
15. This launcher has 2 safeties:
 Note: With new models the safety locking button can be reversed for left-handed users.
 1. Trigger lock, Safety must be "**ON**" until you are ready to fire.
 2. Hammerlock for accidental drop safety.
 Important: should you drop the launcher from a height above 1 meter then we strongly recommend to check the hammerlock plate for damage, see section 6 for details.
16. **Munitions:** there is a wide variety of cal 37/38mm munitions available, the dimensional range is on a much wider band than for example the 40mm munitions. The next page gives you a diagram of minimum and maximum dimensions the L1-37 and L1-37C will accept.
17. If any of the warnings or instructions are unclear or if you are in doubt of anything then contact the manufacturer: Tel. (814) 938-5279 or Fax, (814) 938-7634.

Dual 40/ 36-38 mm casing

2. TECHNICAL DATASHEET**L1 - 37mm/L1-37mm Compact**

Type of Action	*Double action trigger
Safety	*Trigger lock- Reversible for left -handed users *Hammer lock
Caliber	*1.5 inch/37/38 mm
Capacity	*1 shot
Ammunition	*All rimmed 37/38 mm ammunition up to 12 inches/305 mm in length
Loading/Unloading	*Break open frame design allows for quick loading & unloading operation
Barrel	*12 inches/305mm smooth bore barrel
Overall Length	*29 inches/740mm
Weight	*6 lbs/2.75 kg unloaded
Sights	*Standard: Front iron sight- rear groove plus rear flip-up sight *Optional: Short rail or combo rail can be fitted onto monoblock *L1-37 Compact is fitted with a combo rail assembly.

3. TROUBLE SHOOTING

	MALFUNCTION	PROBABLE CAUSE	CORRECTIVE ACTION
1	Misfires due to <u>light</u> primer hits	<ul style="list-style-type: none"> • "Tired" Hammer Spring • Short Hammer Travel • Too large of a headspace • Loose Firing Pin Housing, Firing Pin is too far inside breech face • Primer well below rim surface 	<ul style="list-style-type: none"> • Replace Hammer Spring • Adjust Hammer Travel • Repair Latching • Retighten Firing Pin Housing • Change munition
2	Firing Pin protrude breech face when holding it upside down	<ul style="list-style-type: none"> • Worn Firing Pin spring 	<ul style="list-style-type: none"> • Replace Firing Pin spring
3	Frame-Monoblock does not close	<ul style="list-style-type: none"> • Catch interferes with Catch Lever • Primer protrudes rim surface • Rim is too thick 	<ul style="list-style-type: none"> • Replace or Repair • Change munition • Change munition
4	Cartridge bypasses ejector	<ul style="list-style-type: none"> • Ejector is worn • Ejector is bent outwards • Undersized cartridge case rim 	<ul style="list-style-type: none"> • Replace ejector • Tap ejector carefully inwards • Check dimensions in lot and replace if necessary.
5	Trigger does not return	<ul style="list-style-type: none"> • Trigger return spring is "tired" or broken 	<ul style="list-style-type: none"> • Replace spring
6	Loss of velocity and accuracy	<ul style="list-style-type: none"> • Dirty barrel build-up of powder residue 	<ul style="list-style-type: none"> • Clean

4. CLEANING INSTRUCTIONS

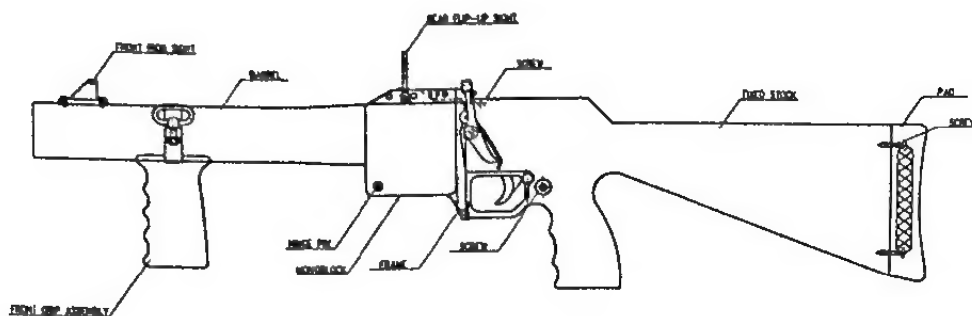
It is recommended the launcher be cleaned and lubricated after each use.

4.1 GENERAL CLEANING

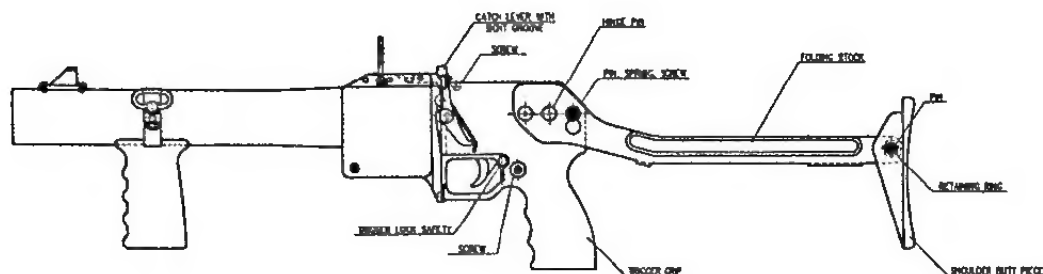
1. Remove all munitions
2. Clean the chamber/barrel with suitable media, brush and cloth. To remove any residue you can wash the barrel with warm soapy water. Ensure that all parts are dried and lubricated afterwards.
3. Thoroughly dry all parts.
4. Lubricate, use a good water repelling lubricant
 1. Trigger mechanism
 2. Hinge area and Latching parts

NOTE: A 'dirty' barrel with residue build up will decrease the velocity and accuracy of the launcher. Cleaning after each use is strongly recommended.

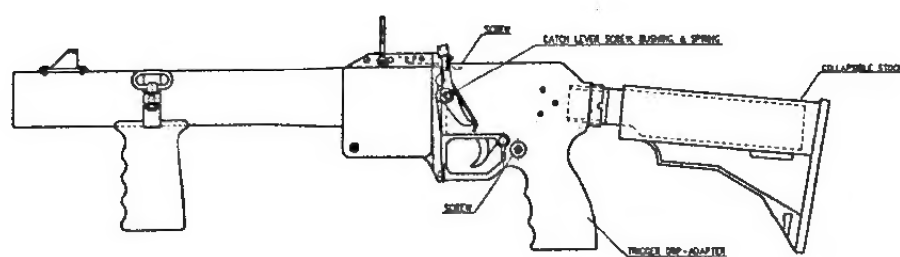
5. PICTORIAL VIEWS



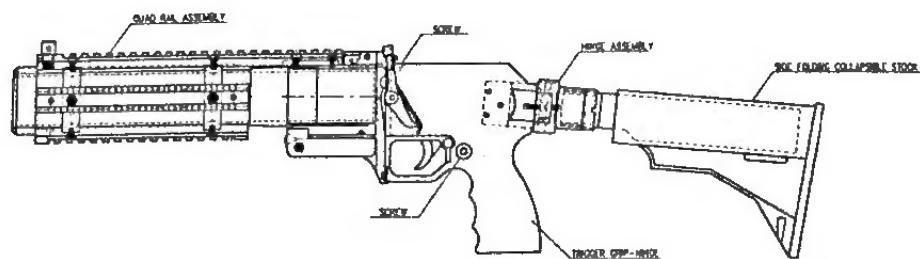
L1-37mm FIXED STOCK



L1-37mm FOLDING STOCK



L1-37mm COLLAPSIBLE STOCK



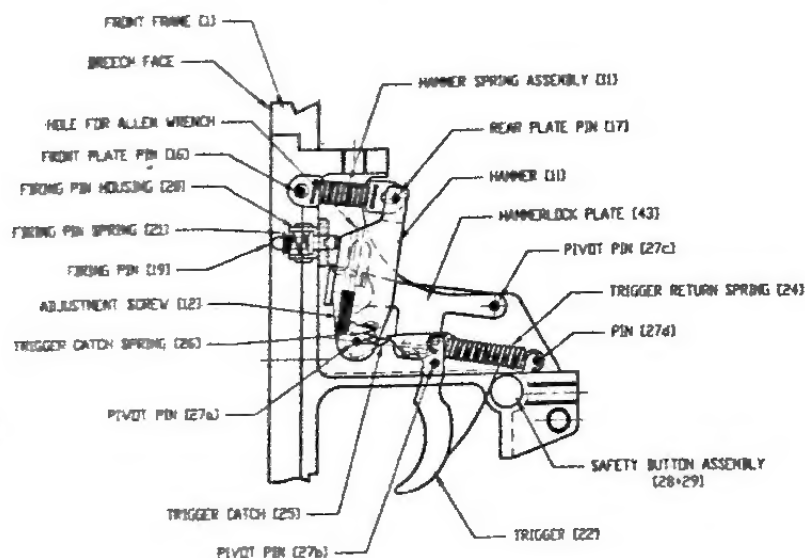
L1-37mm COMPACT

6. DISASSEMBLY/ASSEMBLY OF PARTS FOR CLEANING AND REPAIR

NOTES:

- a) Before starting any work ensure that the launcher is UNLOADED and that there is no excessive tear gas residue left in the chamber/barrel. In that case wash the chamber and barrel with warm soapy water and blow dry all parts before resuming to work on the launcher.
- b) Interchangeability
It is important to note that the following parts are not interchangeable:
 1. Frame and Monoblock-Barrel, ensure serial# on the frame and monoblock match when reassembling.
 2. Latching, if you mix parts in the latching you could have misfit problems, it is recommended to keep these parts in order if you work on more than one launcher at a time.
- c) For easy access to the trigger mechanism we recommend to remove the monoblock-barrel and the catch lever from the frame.
Always ensure that no parts get damaged during disassembly and reassembly operations and no parts get lost or mislaid.
Use soft surfaces like wood, plastic etc. for work surfaces, especially when you work on the frame (breech face) and monoblock-barrel.
- d) Thread-locker: Some parts have been secured with thread lock compound (Loc-tite or Cyberbond). Check the "thread locker application chart" for the parts which have been secured. When you remove a thread locked part then take the upmost care not to damage the part or the surrounding area. To loosen a thread locked part do the following:
 1. Try to unscrew it with your standard tool first; screwdriver, wrench etc., use a lever to assist.
 2. If the part does not come loose then use an impact driver, take care not to damage the parts.
 3. In an extreme case you might have to use heat to loosen the thread locker. Ensure that all other parts have been removed before you apply heat. If there is a spring affected then you must replace it. (firing pin spring, safety spring)
 To remove the barrel you will have to use heat, if you are unsure of any procedure then call the factory for more details.
- e) You don't have to completely disassemble the trigger mechanism when you replace parts, but I recommend you completely disassemble and reassemble it for practice at least once.
Use the exploded views and diagrams to familiarize yourself with the parts and part #'s.

Fig. III



6.1 TRIGGER MECHANISM DISASSEMBLY

6.1.1 REMOVING THE STOCK

1. Remove the 3 retaining screws. [49]
2. Pull the stock off the frame, move it back approx. $\frac{1}{2}$ inch and then downwards to move the trigger guard over the trigger.
If tight tap the stock back with your hand or a rubber/plastic hammer.
3. The trigger mechanism is now exposed for cleaning, repairing or replacing of parts.

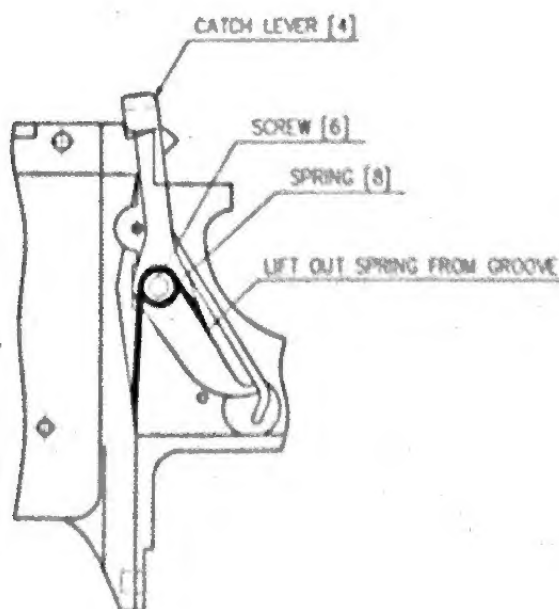
6.1.2 REMOVING MONOBLOCK-BARREL FROM FRAME

1. Remove one hinge pin screw [37] and washer [36].
2. Tap out the hinge pin [35], use a 3mm(1/8) pin punch or smaller, do not damage the M5 thread in the hinge pin.

6.1.3 REMOVING THE CATCH LEVER

1. Remove the screw/spring assembly [6&8] and bushing [7].
 - a) Loosen screw [6] $\frac{1}{2}$ way.
 - b) Pry/lift out the "spring leg" from the groove in the catch lever, use a small screwdriver or small pin punch/scraper.
 - c) Unscrew the screw and remove it together with the bushing [7].
 - d) Repeat on 2nd side (other side).

Fig. IV



6.1.4 REMOVING TRIGGER MECHANISM PARTS (Fig. III)

1. Remove the trigger return spring [24]:
 - a) Unhook spring from pin [27d], use small pin punch or long nose pliers, do not over extend the spring.
 2. Push out pivot pins [27a] [27b] [27c].
 3. Remove parts from the frame/receiver.
 - a) Push trigger [22] upwards and lift it out, use a 2mm pin punch
 - b) Lift hammer [11] out and remove:
 - * Hammerlock plate [43]
 - * Trigger catch [25]
 - * Spring trigger catch [26]
 - * Hammerlock plate spacer [40]
 4. Remove the hammer from the frame:
 - a) Knock out pin [16], tap the pin approx. halfway thru; you can now pull the spring out.
 - b) To replace the hammer spring assembly (Fig. V) [13-14-15] knock out pin [17].
 - c) Replace the hammer spring assembly, take note that the spring plate [15] with the slotted hole fits to the hammer [Fig. V].
- Before re-assembly check the hammerlock plate for wear or damage [Fig. VI].

Fig.V HAMMER SPRING ASSEMBLY

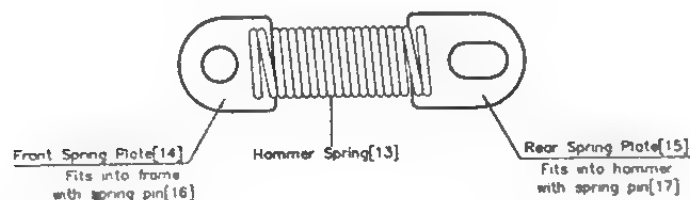


Fig.VI HAMMERLOCK PLATE



The hammerlock plate is an important part to make the launcher drop safe according to NIJ recommended guidelines. Should the launcher have been dropped onto the buttstock or muzzle from a height of more than 1 meter (40 inches), then carefully check the hammerlock plate for any deformation or breakage. If there is any damage visible then replace the hammerlock plate.

5. Remove the firing pin assembly

a) Unscrew the firing pin housing, use a 3/8 wide screwdriver [Penn Arms tool #7]
 NOTE: The housing is fastened with THREAD LOCK, you can use a wrench on the screwdriver, in extreme cases use an impact driver or heat the housing to melt the THREAD LOCK. When you use heat then remove the hammer completely from the frame to avoid damaging the hammer spring. Also if you use heat to remove the firing pin housing; then the firing pin spring must be replaced.

6. Remove the trigger safety (Fig. VIII)

Note: It is rarely necessary to replace any parts in the trigger safety. If it is necessary to remove the safety button [28] follow step below.

a) Unscrew the setscrew [32], remove spring [31] and ball [30]. (Fig. VII)

Note: You can set the safety on-off tension by tightening- loosening the setscrew [32].
 In our newer models we added an M5 screw hole on the left side of the frame so you can turn the safety button for left handed users.

Fig.VII

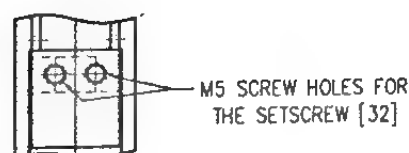
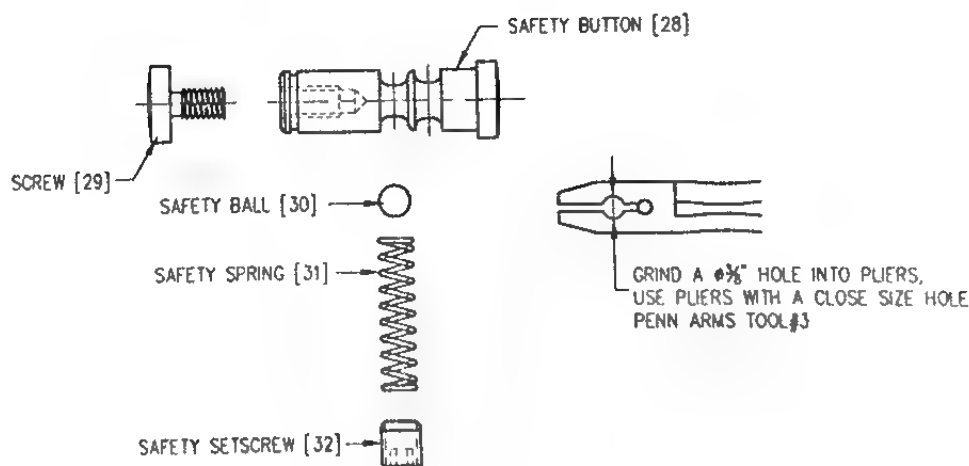


Fig.VIII



b) Unscrew the safety screw [29] use pliers to hold the button and screw, I recommend to drill/grind a suitable hole into the pliers to minimize damage to the parts. (Penn Arms Tool #3)

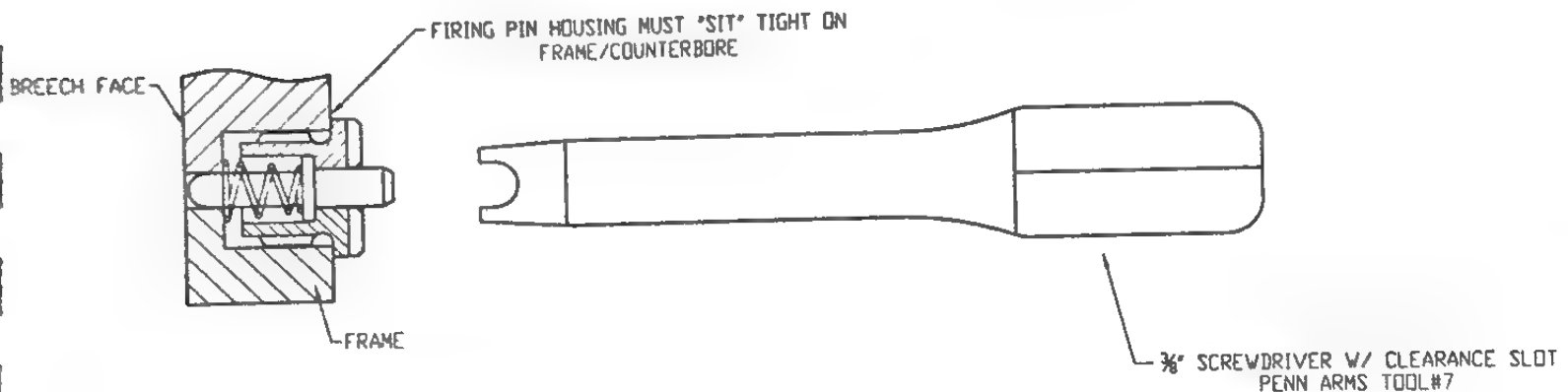
The screw [29] has THREAD LOCK (medium) applied.

6.1.5 REASSEMBLING TRIGGER MECHANISM

NOTE: a) Before reassembling check all parts, ensure they are free of any damage, burrs etc.
Clean all parts, degrease if necessary.
b) Check the THREAD LOCK chart for application as needed (6.6)

1. Fit firing pin assembly to frame, apply a drop of medium strength thread locker to the firing pin housing.
Hand tighten the housing down, ensure it "sits" down on the frame or counterbore.
Check the firing pin protrusion from the breech face, firing pin must be flush to max 0.5mm(0.02") below the breech. (Fig.XIII)

Fig.IX



2. Fit hammer spring assembly (Fig. V) to hammer.
Ensure that the hammer spring is "screwed" fully onto the plates.
The ends should touch the plate or be as close as possible when the 2 plates are "IN LINE". (Fig. X)
Should the spring "unscrew"/ come out of the plate then refit the spring as described in Fig. XI.

Fig.X

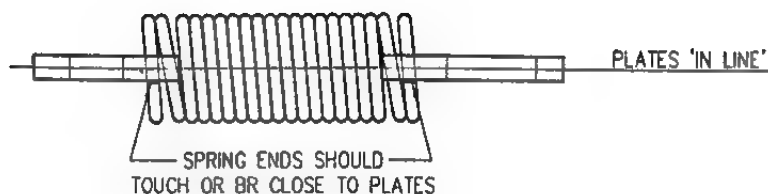
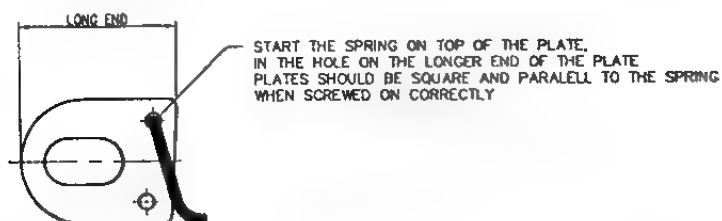


Fig.XI

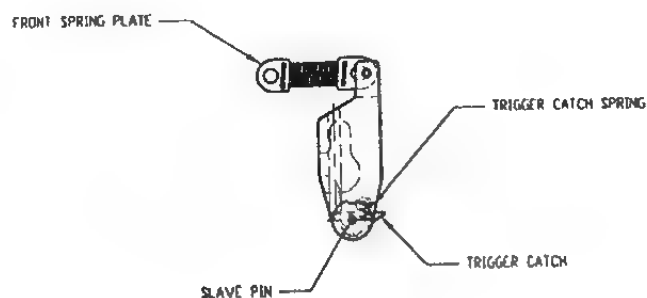
SCREWING THE SPRING ONTO THE HAMMER LOCK PLATE



NOTE: MOST SPRINGS ARE WOUND RIGHT HAND. TURN THE SPRING CLOCKWISE TO SCREW IT ONTO THE PLATE. ON RARE OCCASSIONS YOU MIGHT ENCOUNTER LEFT HAND SPRINGS.

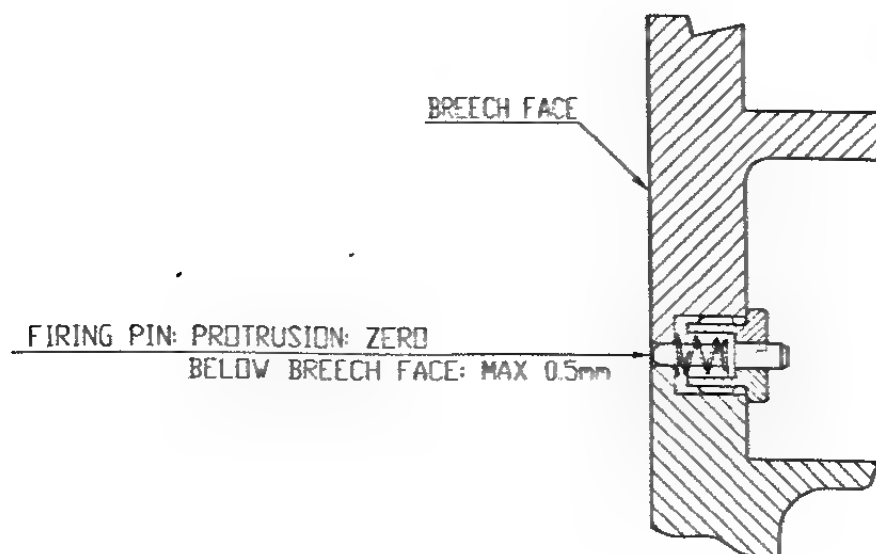
3. Fit hammer assembly to frame. (Fig. III), put the front spring plate over spring pin [16] and knock pin fully into frame.
4. Fit the trigger catch spring [26] and trigger catch [25] to the hammer with a "slave"/"assembly pin" (Dia. 2x10 or 2x12 pin) it is advisable to use grease to hold the spring in the hammer recess. (Fig.XII)

Fig.XII



5. Push the hammer assembly carefully into the frame/receiver.
6. Align the pivot hole with the hammer pivot hole/slave pin and push the pivot pin[27a] through, thereby pushing out the slave pin.
7. Fit the hammerlock plate:
 - a) Pull the hammer back and put the hammerlock plate in position, with the hammerlock plate lug fitting into the groove in the hammer.
8. Fit the trigger with pin[44] into the slot in the hammerlock plate, to do this lift the hammerlock plate up.
9. Align the trigger with the pivot hole and push in the pivot pin [27b].
10. Align hammerlock plate with pivot hole and push in pivot pin [27c] with sleeve [40].
11. Fit the trigger return spring [24].
12. Check the hammer travel, see page 14. (Fig. XIV)
13. Test trigger pull and hammer function by "dry firing".
14. Check breech face, firing pin must not protrude above the breech face, can be max. 0.5mm below breech face. (Fig.XIII)
15. Check safety: "ON" position, trigger pull must not release hammer
"OFF" position, trigger pull releases hammer

Fig.XIII

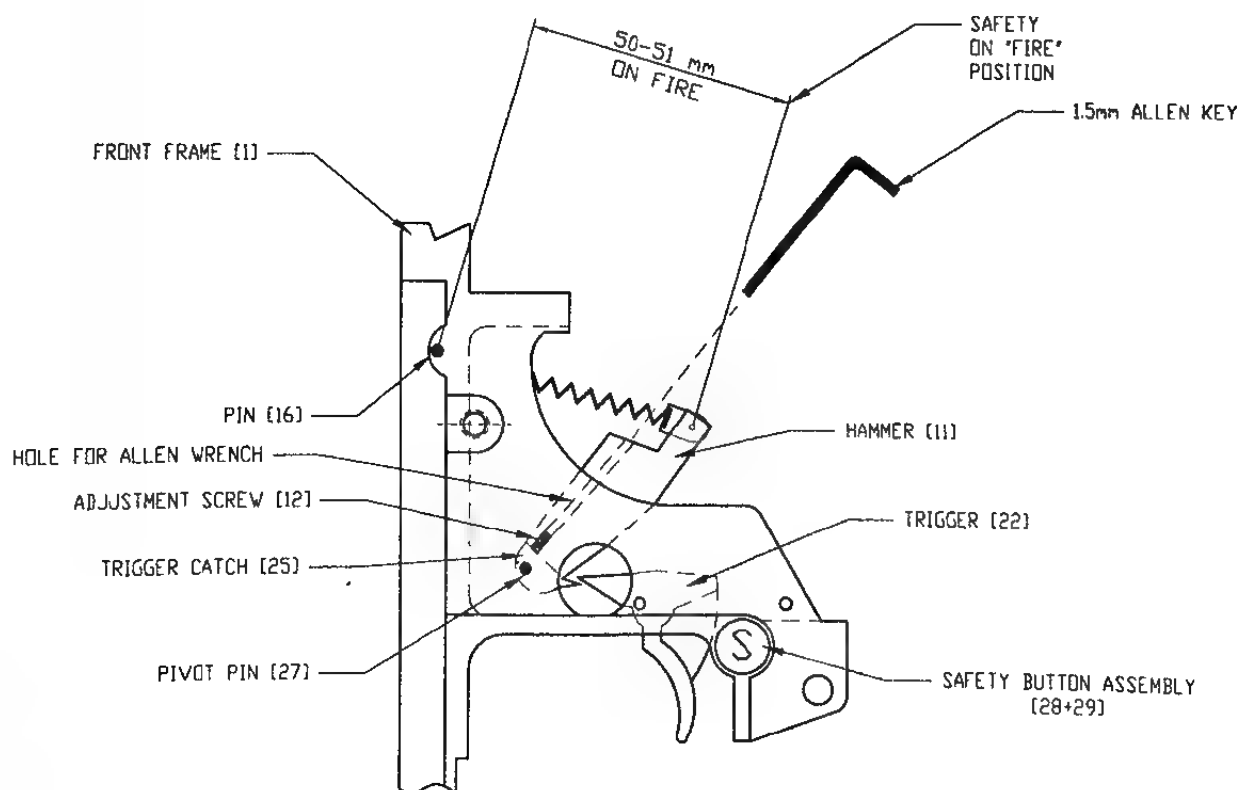


16. Hammer travel adjustment

If you experience "light" firing pin hits and after fitting a new hammer spring, check the hammer travel and adjust if necessary.

- 1) Set the safety button to the fire position.
- 2) Slowly pull the trigger and measure the distance between the front hammer spring pin [16] and the rear hammer spring pin [17] at the point where the hammer is released. Penn Arms has a gauge available for checking the travel length, (Penn Arms tool #16).
- 3) Adjust the hammer travel to 50-51 mm:
 - *Use a 1.5mm long arm allen key, fit the key into the hole on top of the hammer and push it into the adjustment screw [12] which pushes onto the trigger catch [25]. Turning the screw clockwise will increase the hammer travel.
- 4) Check the hammer travel with the safety on. Hammer travel is minimal and trigger pull must not release hammer.
- 5) Lightly lubricate all friction surfaces.

Fig. XIV
HAMMER TRAVEL ADJUSTMENT



17. Reassembling the monoblock-barrel assembly to the frame:

You can do this re-fitting before or after any work has been done to the latching (catch lever & catch).

Remember it is easier to work on any area without too many other parts in the way.

- 1) Align the frame and monoblock hinge holes, knock in the hinge pin, take care not to damage the screw head, use only lead, brass or hard plastic hammers.
- 2) Fit the screw and washer on the other side.
- 3) Make sure the frame-monoblock opens freely, oil parts as needed.

18. Re-fitting the stock:

This operation can be done last.

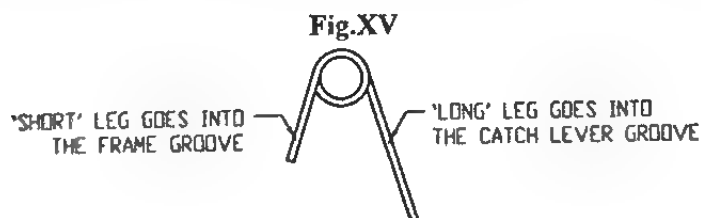
- 1) Push/tap stock onto the frame, ensure none of the pivot pins have come out of the frame before you push the stock onto the frame.
- 2) Fit all 3 screws and hand tighten them.

6.2 LATCHING

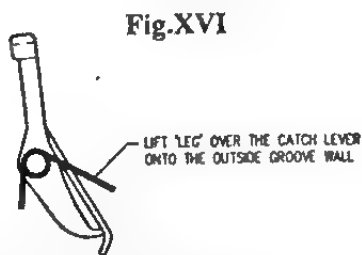
6.2.1 FITTING CATCH LEVER

Note: When fitting the catch lever make sure that the catch lever spring [8] is fitted to the correct side.

Newer models(late 2012) have a 'right' and 'left' catch lever spring, where the 'short' leg is on the top. This makes fitting the spring easier.



1. Place the catch lever in position, line it up with the m5 holes in the frame.
2. Fit the bushing [7] into the catch lever.
3. Screw in the screw/spring assembly on one side, turn the screw in ½ way.
4. Lift the 'long' leg of the spring over the catch lever onto the outside groove wall. Use a small screwdriver, pin, needle nose pliers, etc. to ensure that the spring coil doesn't come out of the screw head groove.



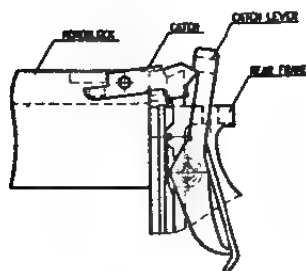
5. Fasten the screw, ensure that the 'short' leg sits inside the frame groove.
6. Push the 'long' leg inside the groove in the catch lever.
7. Repeat procedure on the other side.

6.2.2 REPAIRING/ FITTING OF CATCH

Fig. XVII

CORRECT INTERFACE OF CATCH LEVER TO CATCH

a) IN OPEN POSITION



b) IN CLOSED POSITION

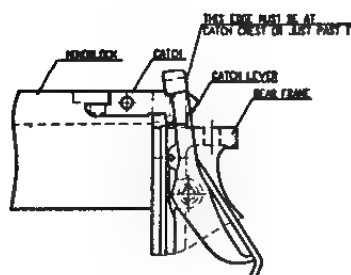
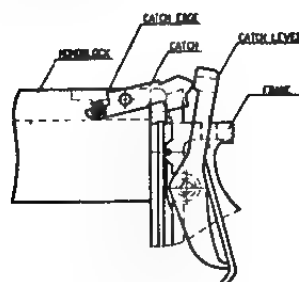


Fig. XVIII

INCORRECT INTERFACE OF CATCH LEVER TO CATCH



INCORRECT INTERFACE CAN BE CAUSED BY A 'WORN' CATCH EDGE, IT ALLOWS THE CATCH TO OPEN UPWARDS TOO FAR

REPAIR CATCH

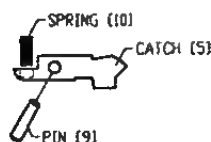


Fig. XIX

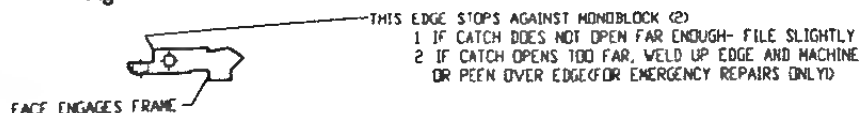
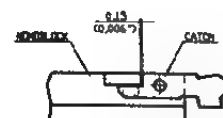
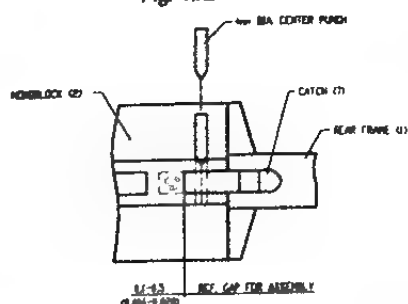


Fig. XX



FITTING NEW CATCH

Fig. XXI

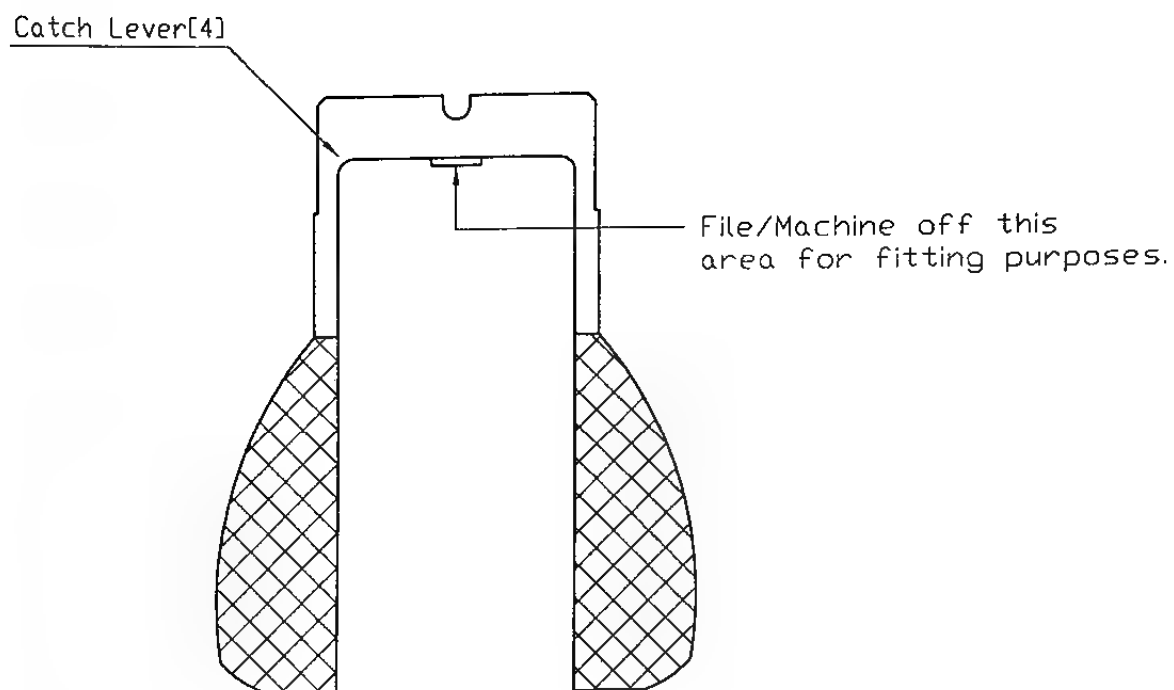


- 1 HOLD THE 2 FRAMES TOGETHER (YOU CAN USE A CLAMP)
- 2 FIT CATCH INTO SLOT AND REAR FRAME, CATCH SHOULD BE FLUSH TO TOP OF FRONT FRAME
- 3 USE $\varnothing 4\text{mm}$ CENTER PUNCH TO MARK HOLE POSITION
- 4 DRILL $\varnothing 4,10-\varnothing 4,20$ HOLE
- 5 DEBURR
- 6 FIT
- 7 CHECK CLOSING MAX 0.10 "PLAY" BETWEEN FRAMES PERMISSIBLE.
- 8 DISASSEMBLE AND GUN BLUE AND OIL THE CATCH.
- 9 REASSEMBLE, ENSURE THAT SPRING (10) SITS CORRECTLY IN THE CATCH RECESS USE GREASE TO HOLD SPRING IN POSITION

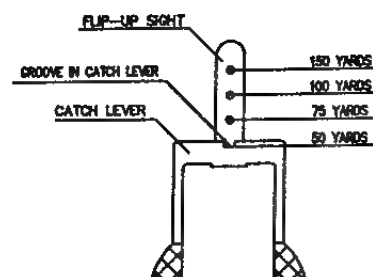
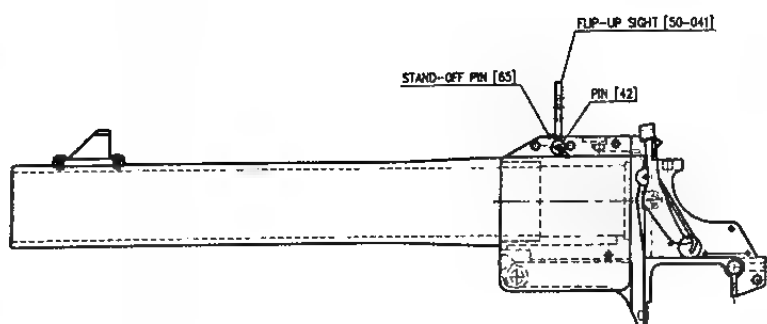
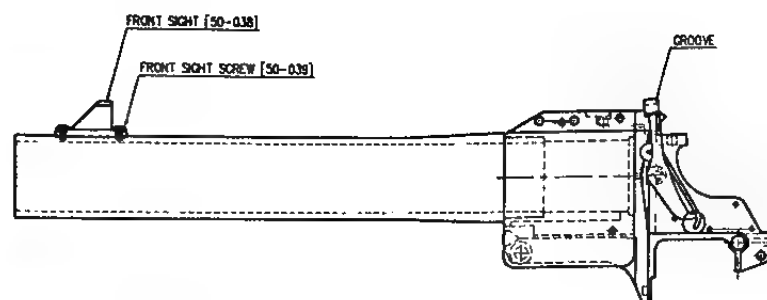
6.2.3 REPLACING CATCH LEVER

1. Catch lever may need fitting/filing to fit correctly over the catch.

Fig.XXII

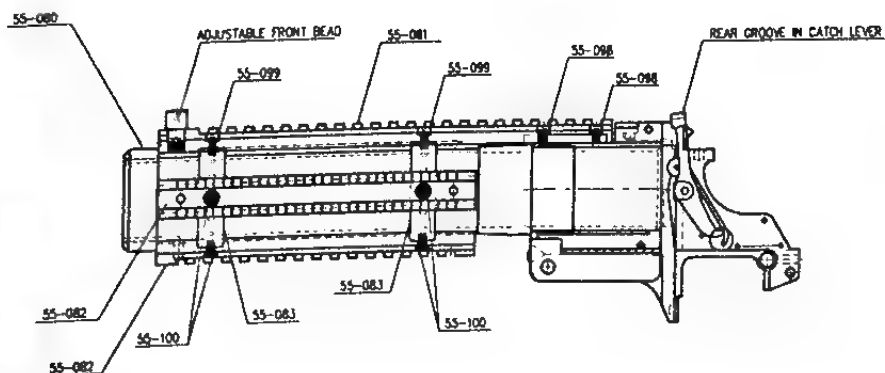


6.3 SIGHT



IMPORTANT: This is to be used as a Guide Only, Ranges will vary with munitions muzzle velocity.

6.3.1 L1-37 COMPACT SIGHT/RAIL ASSEMBLY

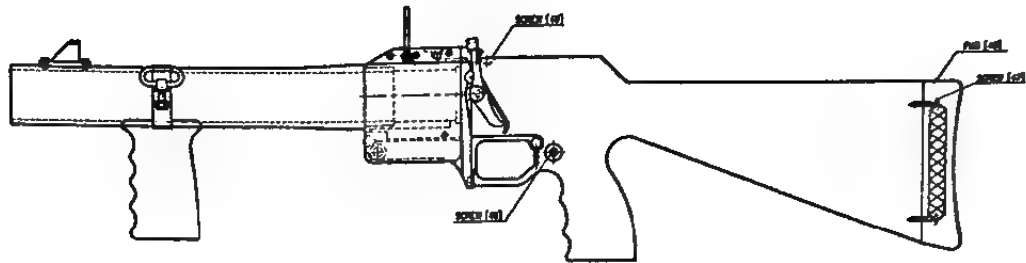


SIGHT ADJUSTMENTS

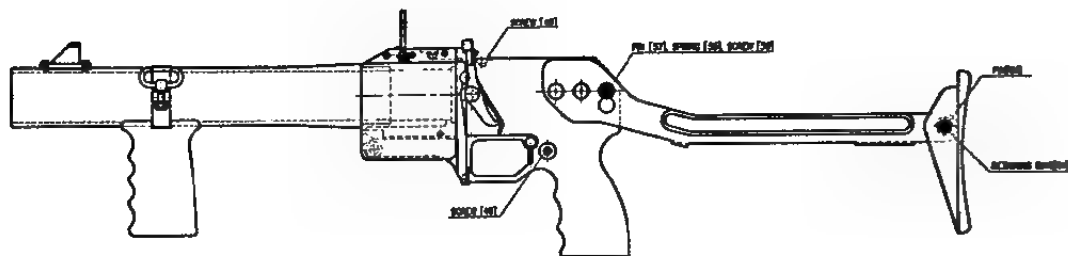
1. Elevation:
 - a) Screw front bead up or down as needed. (Penn Arms Tool #26)
2. Windage:
 - a) Loosen top screws 55-098 & 55-099
 - b) Move rail left or right as needed.

6.4 STOCKS

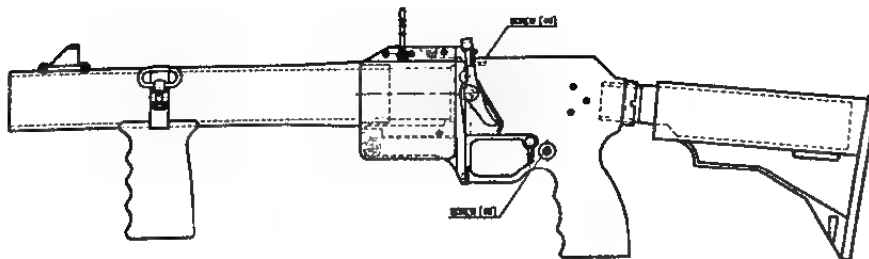
FIXED



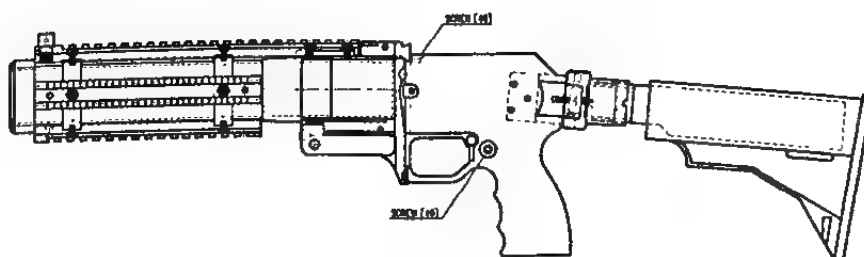
FOLDING



COLLAPSIBLE



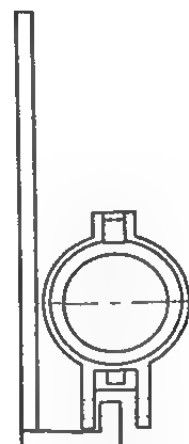
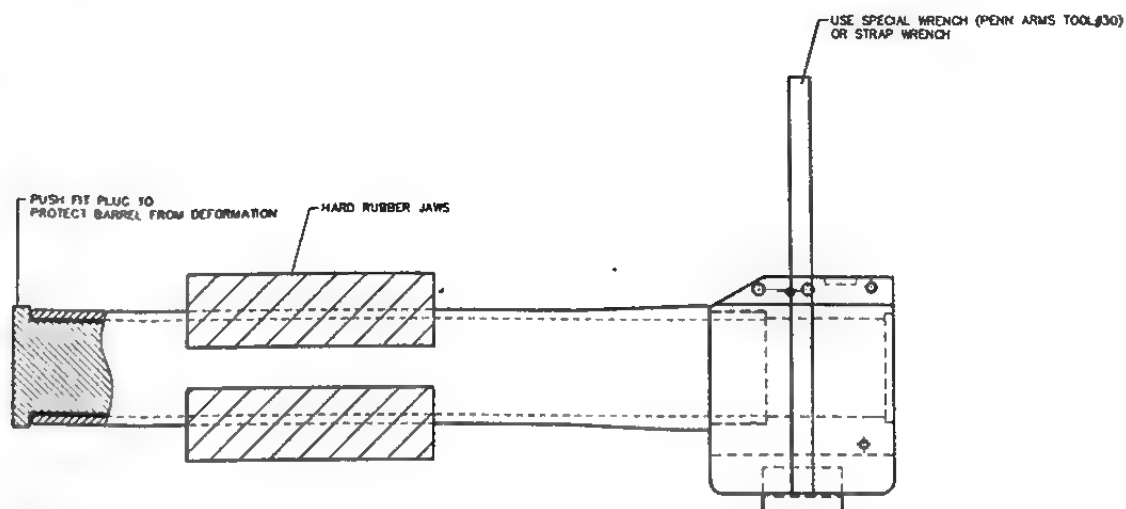
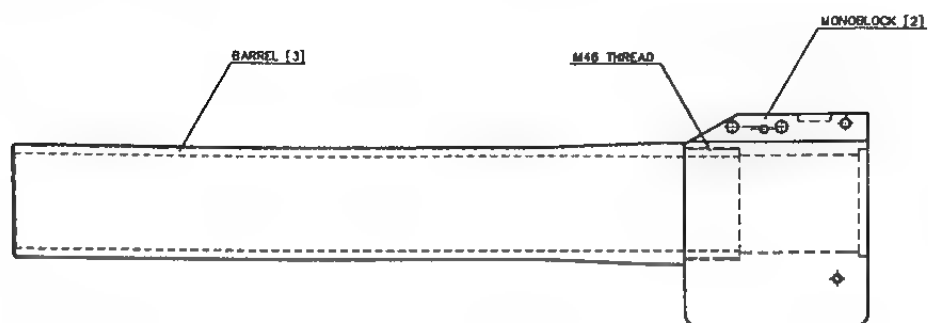
COLLAPSIBLE SIDE FOLDING



6.5 REMOVING/REPLACING BARREL

Note: Barrel is secured in the monoblock with Hi-Strength thread locker.

1. Remove front grip from barrel.
2. Clamp barrel in a rubber jawed vise.
3. Heat monoblock and barrel around M46x1 thread area.
4. Unscrew barrel from monoblock.
5. Clean threads before fitting new barrel.



6.6 THREAD LOCKER APPLICATION CHART

Model: L1-37 and L1-37 Compact

Part/Assembly	Strength	Amount	Color	Make	
				Loc-tite	Cyberbond
Barrel/Monoblock	High	3 lines	Red	272	7272
M4 Front Iron Sight	High	1 small drop	Red	272	7272
M3 Hammer Setscrew	Medium	1 small drop	Blue	242	7242
Firing Pin Housing	Medium	1 drop	Blue	242	7242
Safety Button	Medium	1 small drop	Blue	242	7242
Safety Setscrew	Medium	1 small drop	Blue	242	7242
Combo Rail Screws	Vibra-Tite	1 drop			
Folding Stock Screw/Button	Medium	1 drop	Blue	242	7242
Barrel Nut L1-37C	Medium	2 drops	Blue	242	7242

Application Directions:

1. Remove all dirt and oil
2. Apply thread lock as per chart, use a suitable applicator such as a syringe or plastic bottle with a nozzle.
3. Assemble parts
4. Most thread lock has a handling strength after 15 minutes, it's advisable to let it dry for a longer period of time.

Disassembly of thread locked parts:

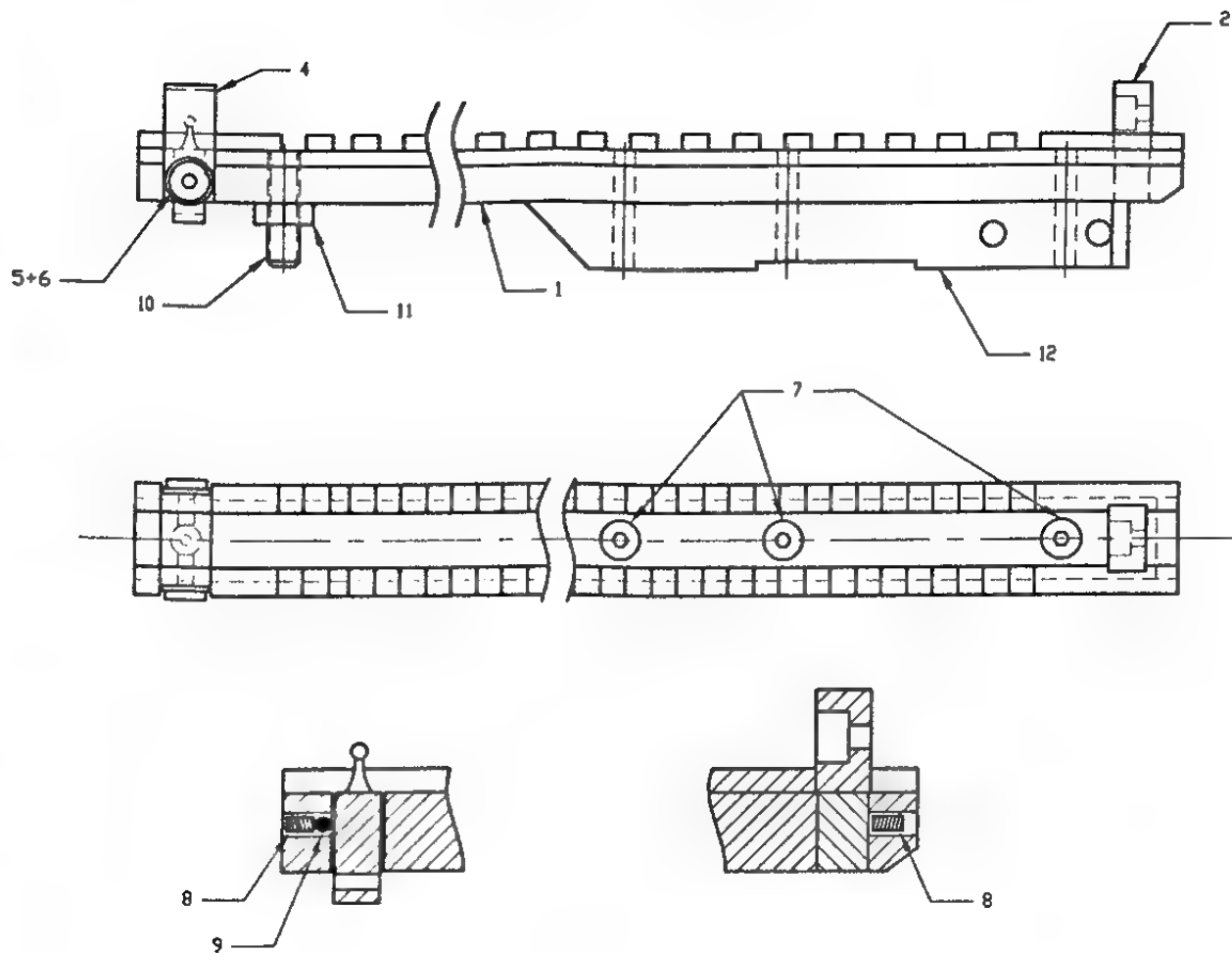
1. First try to unscrew it with your standard tools, most medium strength locked parts should come apart, if necessary apply a lever to your screwdriver, wrench etc.
2. If the part does not come loose then use an impact driver, take care not to damage the parts.
3. In an extreme case you might have to use heat to break loose locked parts, make sure you you replace any springs affected.

7. GENERAL FUNCTION CHECKLIST

After each cleaning or repairing procedure we recommend the following function tests be performed:

1. **LATCHING**
 - a) Open and close the frames, do not hard "slam" shut the frames.
 - b) Catch lever must engage/go over catch smoothly and fully against the stop.
2. **FIRING PIN PROTRUSION FROM BREECH FACE**
 - a) Open breech
 - b) Visually check firing pin hole, firing pin must not protrude.
 - c) Hold breech upside down, check if firing pin protrudes, if it does then replace the firing pin spring
3. **TRIGGER/SAFETY MECHANISM**
 - a) With safety "ON", pull trigger, trigger pull must not allow hammer to fall.
 - b) With safety "OFF", pull trigger, trigger pull must release hammer.
4. **FIRING TEST**
 - a) If possible "test fire" the weapon with empty casings, loaded with primers only.
This will ensure proper function of the firing pin/trigger mechanism.
 - b) Always check all warnings and your departments regulations!
5. **HAMMERLOCK SAFETY PLATE**
 - a) Did you check the hammerlock safety plate for damage?

8. COMBO RAIL DIAGRAM



REF#	PART DESCRIPTION	QTY
A200-001	RAIL	1
A200-002	GHOST RING	1
A200-003	FRONT BEAD SIGHT	1
A200-004	GUARD	1
A200-005	SCREW	2
A200-006	WASHER	2
A200-007	SCREW	3
A200-008	SETSCREW	2
A200-009	NYLON BALL F THREAD PROTECTION	1
A200-010	SETSCREW F SUPPORT	1
A200-011	NUT	1
A200-012	MOUNTING BRACKET F SINGLE SHOT	1
A200-013	SPRING PINS (NOT SHOWN)	2

SIGHT ADJUSTMENT 1 ELEVATION

- LOOSEN SETSCREW [8]
- TURN BEAD UP OR DOWN, USE SMALL PIN IN BOTTOM HOLE
- TIGHTEN SETSCREW

2 WINDAGE

- LOOSEN SCREW [7]
- HANDTIGHTEN SCREW
- TAP RAIL RIGHT OR LEFT
- TIGHTEN SCREWS

9. RECOMMENDED SPARE PARTS LIST

<u>Ref#:</u>	<u>Part Description</u>	<u>Quantity Per Unit</u>
4	Catch Lever	1
6	Catch Lever Screws	2
7	Catch Lever Bushings	2
8	Catch Lever Spring	2
10	Catch Spring	1
13	Hammer Spring Assembly	1
14]		
15		
21	Firing Pin Spring	1
24	Trigger Return Spring	1
27	Pivot Pins	4
43	Hammerlock Plate	1

10. PENN ARMS TOOL KIT**(make, model, color etc. may vary)**

1. Set of metric allen keys, long arm 1.5 - 6mm
2. Set of metric pin punches, 2 - 3 - 4mm
3. (2) Long nose pliers, with round holes on the side for loosening and tightening the trigger safety.
4. Adjustable wrench
5. Small hammer, 4 - 8oz.
6. Plastic hammer
7. Wide blade screwdriver with slot
8. Manual impact screwdriver
9. Snap ring pliers
10. Strap wrench
11. Set of needle files
12. 4mm Transfer punch
13. Clamp-on bench vise
14. Magazine holding fixture
15. Feeler gauges
16. Hammer travel gauge
17. Metric Calipers
18. M6x40 cap screw for magazine removal
19. Special "C" wrench for winding spring
20. 2x10 assembly/slave pin
21. 2x14 assembly/slave pin
22. Special screwdriver - plunger nut (FOR "PUMP" MODELS ONLY)
23. Special screwdriver - stop pin housing (FOR "PUMP" MODELS ONLY)
24. Special screwdriver - stop pin nut (FOR "PUMP" MODELS ONLY)
25. Tool box

Tool#26 - Front Sight Tool

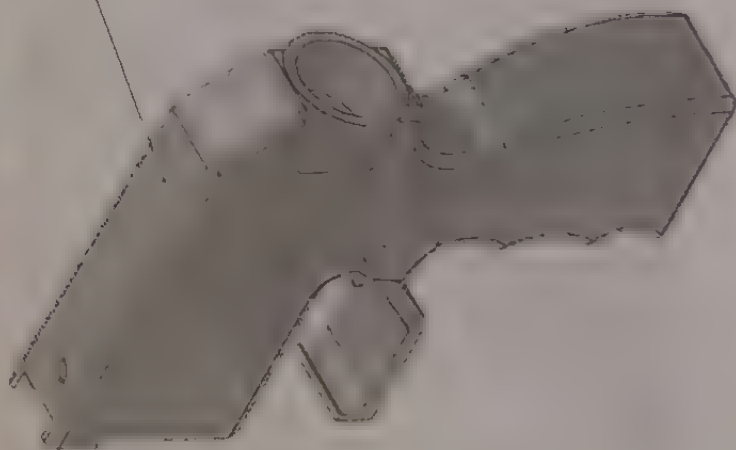
Tool#30 - Monoblock Wrench

11. L1/TL1 PARTS LIST

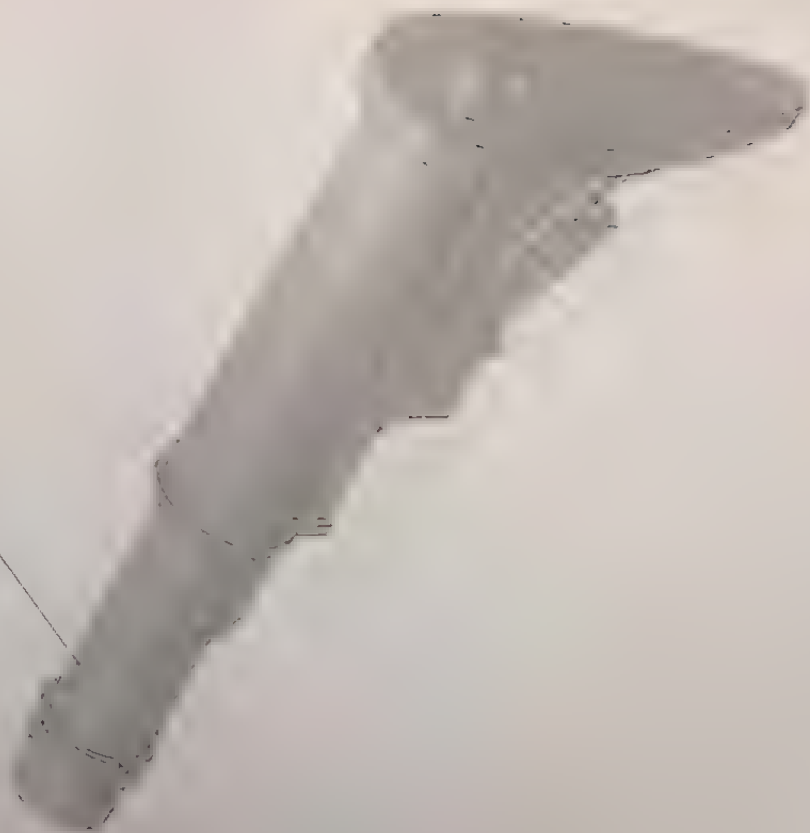
<u>Ref#</u>	<u>Part Description</u>	<u>Quantity Per Unit</u>
<u>FRAME-TRIGGER MECHANISM-BARREL</u>		
1	Frame	1
2	Monoblock	1
3	Barrel	1
4	Catch Lever	1
5	Catch	1
6	Screw Catch Lever	2
7	Bush Catch Lever	2
8	Spring Catch Lever	2
9	Catch Pin	1
10	Spring Catch	1
11	Hammer	1
12	Hammer Screw	1
13	Hammer Spring	1
14	Front Spring Plate	1
15	Rear Spring Plate	1
16	Front Plate Pin	1
17	Rear Plate Pin	1
18	Hammer Spacer (phasing out)	1
19	Firing Pin	1
20	Firing Pin Housing	1
21	Firing Pin Spring	1
22	Trigger	1
23	Pin Trigger Return Spring	1
24	Trigger Return Spring	1
25	Trigger Catch	1
26	Trigger Catch Spring	1
27	Pivot Pin	4
28	Safety Button	1
29	Safety Button Screw	1
30	Safety Ball	1
31	Safety Spring	1
32	Safety Setscrew	1
33	Ejector	1
34	Retaining Pin Ejector	1
35	Hinge Pin	1
36	Hinge Pin Washer	2
37	Hinge Pin Screw	2
38	Front Iron Sight	1
39	Front Iron Sight Screw	2
40	Hammerlock Plate Spacer	1
41	Rear sight	1
42	Pin Rear Sight	1

<u>Ref#</u>	<u>Part Description</u>	<u>Quantity Per Unit</u>
<u>FRAME-TRIGGER MECHANISM-BARREL</u>		
43	Hammerlock Plate	1
44	Trigger Pin Hammerlock Plate	1
<u>FIXED STOCK</u>		
45	Fixed stock	1
46	Shoulder Butt	1
47	Shoulder Butt Screw	2
48	Sling Swivel	1
49	Stock Screws	3
<u>FOLDING STOCK</u>		
50	Trigger Grip	1
51	Folding Stock	1
52	Hinge Pin	1
53	Shim (Plastic)	2
54	Shim (Steel)	2
55	Retaining Ring	2
56	Sling Swivel	1
57	Locking Button	1
58	Locking Button Spring	1
59	Locking Button Screw	1
60	Shoulder Butt	1
61	Shoulder Butt Hinge Pin	1
62	Shoulder Butt Spring	1
63	Shoulder Butt Washer	2
64	Retaining Ring	2
<u>FRONT GRIP ASSEMBLY</u>		
67	Front Grip	1
68	Front Grip Clamp	1
69	Clamp Nut	1
70	Clamp Screw	1
71	Clamp Washer	1
72	Swivel	1
73	Spacer	1
74	Nut	1

TRIGGER GRIP ASSEMBLY



STOCK ASSEMBLY

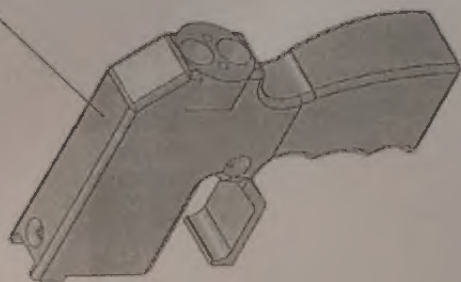


TRIGGER GRIP-COLLAPSIBLE STOCK

PORT 1



TRIGGER GRIP ASSEMBLY



55-088

55-091

55-092

55-089



55-095

55-095

55-093

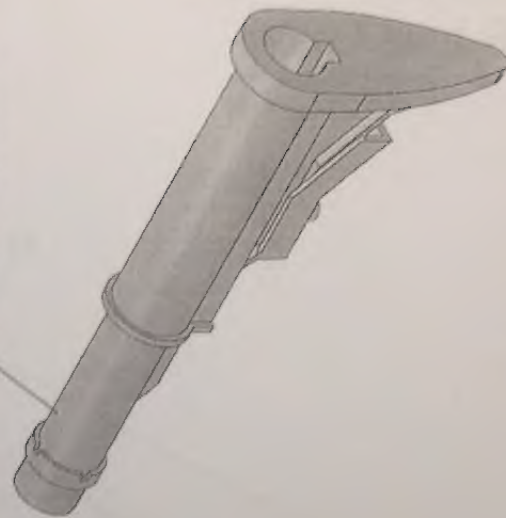
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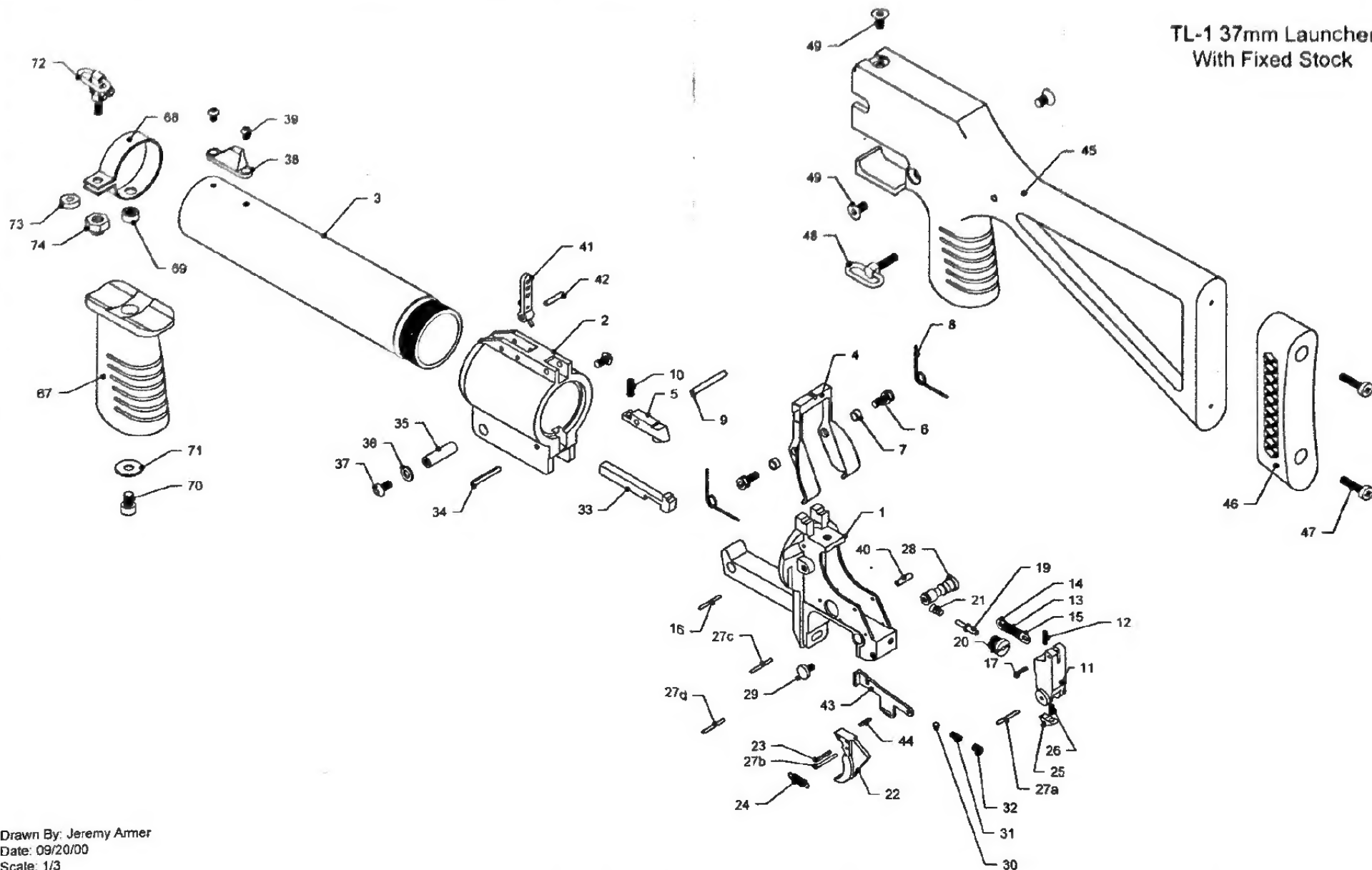
STOCK ASSEMBLY



TRIGGERGRIP-HINGE-COLLAPSIBLE STOCK
FOR L1-37 COMPACT

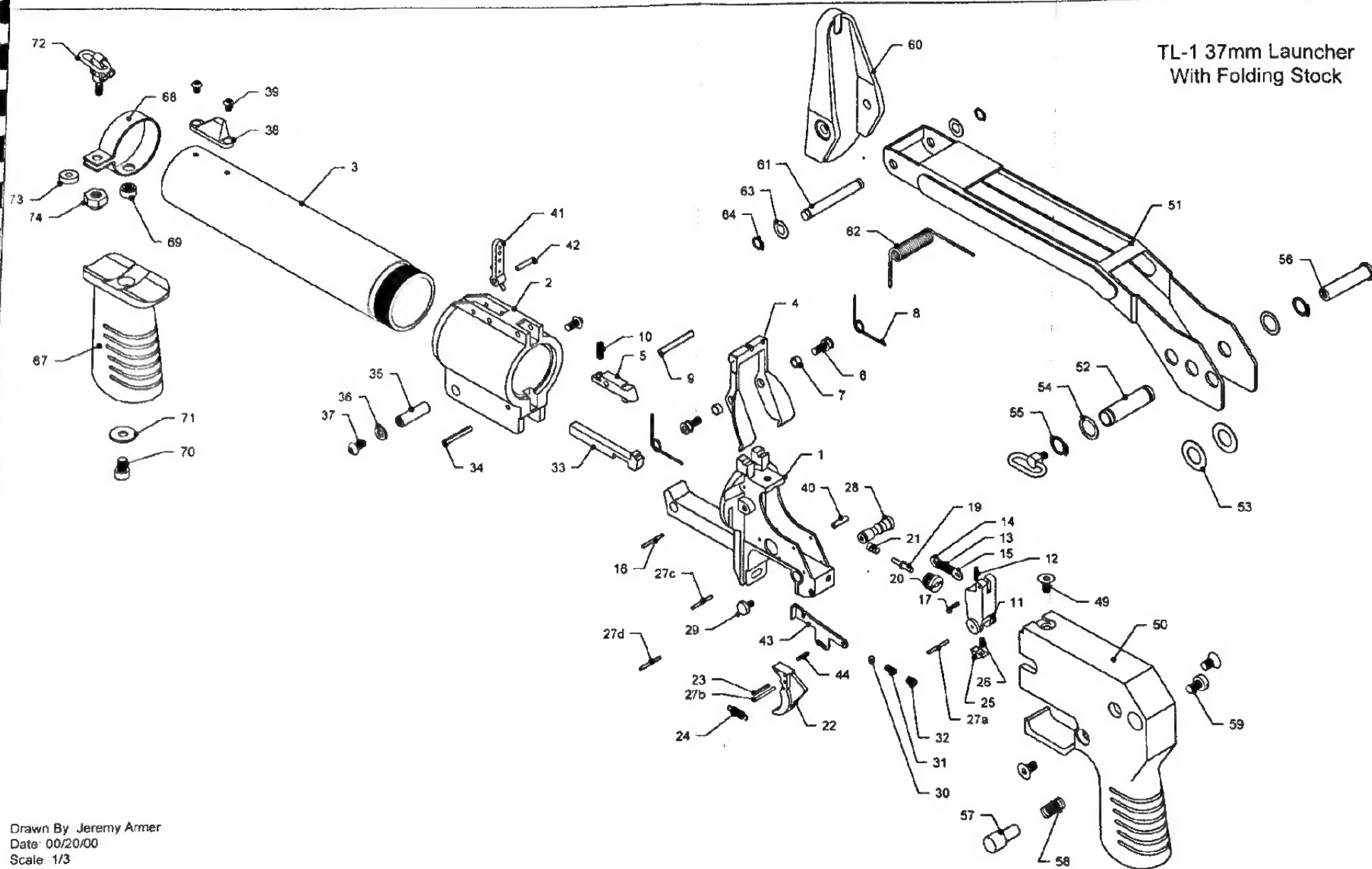


TL-1 37mm Launcher With Fixed Stock



Drawn By: Jeremy Amer
Date: 09/20/00
Scale: 1/3

TL-1 37mm Launcher With Folding Stock



Drawn By Jeremy Armer
Date: 00/20/00
Scale: 1/3

